



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No. : 10/673,659  
Declarant(s) : Kevin B. McNeil  
Filed : September 29, 2003  
Art Unit : 1772  
Examiner : Donald J. Loney  
Docket No. : 9372  
Confirmation No. : 2454  
Customer No. : 27752  
Title : EMBOSSED MULTI-PLY FIBROUS STRUCTURE  
PRODUCT AND PROCESS FOR MAKING SAME

**DECLARATION UNDER 37 CFR 1.132**

Mail Stop Amendment  
Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

**INTRODUCTORY REMARKS**

Dear Sir:

I, Kevin Benson McNeil, hereby declare the following:

1. THAT, I am a named inventor of the above-identified patent application;
2. THAT, I received a Bachelor of Science in Mechanical Engineering from Michigan State University in March of 1977 and have been employed by The Procter & Gamble Company since April of 1977, currently as a Technical Associate Director, Engineering. I have worked on the development of new embossing technologies since 1990 and have significant experience with projects or efforts involving embossed products, embossing processes, and embossing apparatus.
3. THAT, the experiments, products, images and technical measurements that were made in support of the instant Declaration were all performed and/or executed in the United States of America (Cincinnati, OH).

4. I am familiar with U.S. Pat. No. 3,708,366 to Donnelly et al. (hereinafter "Donnelly"), U.S. Pat. No. 5,846,636 to Ruppel et al. (hereinafter "Ruppel"), and U.S. Pat. No. 4,135,024 to Callahan et al. (hereinafter "Callahan"). I have thoroughly reviewed Donnelly, Ruppel, and Callahan and it is my technical opinion that neither Donnelly, nor Donnelly in view of Ruppel and/or Callahan, adequately teach non-adhesively bonded non-densified embossed sites, wherein the embossment sites result from the protuberances of one embossing roll engaging with the depressions of another embossing roll and extend in the y-direction from the x-plane of the structure, and adhesively bonded densified non-embossed sites, and wherein the densified non-embossed sites have a density that is greater than the density of the non-densified embossed sites.

As presently amended, the invention at issue claims: An embossed multi-ply fibrous structure product comprising two or more plies of fibrous structure bonded together along adjacent surfaces of the two or more plies by an adhesive to form a bond area, wherein the bond area is less than about 30% of the bonded adjacent surfaces, wherein the product comprises two faces, wherein one face comprises non-adhesively bonded non-densified embossed sites, wherein the embossment sites result from the protuberances of one embossing roll engaging with the depressions of another embossing roll and extend in the y-direction from the x-plane of the structure, and the other face comprises adhesively bonded densified non-embossed sites, and wherein the fibrous structure product exhibits an embossment height of at least about 1000  $\mu\text{m}$ , and wherein the densified non-embossed sites have a density that is greater than the density of the non-densified embossed sites (Claim 1).

The prior art teaches using an embossing roll and a rubber roll to form the embossed paper product (Donnelly, Col. 2, lines 43-46; Ruppel, Col. 3, lines 56-67; Col. 4, lines 1-4; Callahan, Col. 5, lines 52-56) and a paper product comprising unembossed regions which are not adhesively bonded, and embossed regions which are adhesively bonded (Donnelly, Col. 4, lines 22-36; Ruppel, Col. 3, lines 52-55). It is my opinion, as one of skill in the art, that the embossments of prior art would be compressed into the surface of the paper product. One of skill in the art would appreciate that the embossments of the prior art would be subjected to a pressure on the order of

approximately 700 psi because the emboss protrusions actually compress the surface of the paper into the rubber roll to create a highly densified embossed area. In addition, the embossments are subsequently compressed against an additional hard rubber roll to adhesively bond multiple plies together, that force being on the order of approximately 2000 psi.

However, the embossments of the present invention are only subjected to a pressure of approximately 70 psi because the protrusions of a first emboss roll (callout 26 in FIGS. 2-3) nests within depressions in a second emboss roll (callout 34 in FIGS. 2-3), thus not compressing the surface of the paper as in the prior art. Further, the non-embossed areas are formed in the areas where adhesive is applied to the surface of a first ply, and then laminated to a second ply when the first emboss roll contacts the marrying roll (callout 32 in FIGS. 2-3). Thus, the non-embossed areas are subjected to a laminating pressure of approximately 2000 psi and are therefore have a higher density than the embossments.

Magnified cross-sectional micrograph views of an exemplary embossed product made according to the methods of the prior art (Donnelly, Ruppel, and Callahan) are included as Exhibit A. As is clearly visible in the Exhibit, the embossed site (denoted by the dotted arrow) has been highly densified when compared to the non-embossed sites (denoted by the solid arrows). Further, the embossments of the prior art have been compressed into the plane of the structure.

By contrast, magnified cross-sectional micrograph views of an exemplary embossed product made according to the present invention are included as Exhibit B. As is clearly visible in the Exhibit, the embossed site (denoted by the dotted arrow) has not been densified, and is actually not densified when compared to the non-embossed sites (denoted by the solid arrows). Further, the embossments of the present invention have been formed out of the surface of the structure, which is not the case of the prior art.

It is my opinion, as one of skill in the art, that the structure of the present invention is clearly distinct from the structure of the prior art because the non-densified, non-adhesively bonded embossed sites fo the present invention have been formed out of the plane of the surface of the structure, whereas the non-densified, non-adhesively bonded, non-embossed sites of the prior art are in the original plane of the paper. In

addition, the densified, adhesively bonded non-embossed sites of the present invention are in the original plane of the structure, whereas the densified, adhesively bonded embossed sites of the prior art are compressed into the plane of the structure. This conclusion is clearly supported in Exhibits A and B.

I, being of at least ordinary skill in the art of embossing, am not able to use the teaching of Donnelly, or Donnelly combined with Ruppel and/or Callahan, to make a an embossed multi-ply fibrous structure product comprising a first face and a second face, wherein the first face comprises non-adhesively bonded embossment sites and the second face comprises adhesively bonded non-embossed sites.

5. With regard to the claimed invention of the above-named application, I submit that I and my co-inventors have made an embossed multi-ply fibrous structure product comprising a first face and a second face, wherein the first face comprises non-adhesively bonded embossment sites and the second face comprises adhesively bonded non-embossed sites. Before my discovery and invention, no one had taught such a composition.

I, Kevin Benson McNeil, declare that all statements made herein are true to the best of my knowledge, or if made upon information and belief, are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Further Declarant sayeth naught.

  
Kevin Benson McNeil

Date: 31 July 07